

Abstract of the Disclosure

5 This invention relates to novel process of preparing chemically  
bonded composite hydroxide ceramics by exposing a thermally treated hydroxide  
ceramic to phosphate reagent and subsequent heat treating the resulting system to  
initiate a rapid chemical bonding reaction. Such combined hydroxide/chemical  
bonding process can be used to fabricate ceramics or ceramic coatings for a variety  
of high and low temperature applications, including corrosion protection, wear  
resistance, dielectric properties, metal reinforced ceramics, ceramic membranes,  
10 non-sticky surfaces, bio-active ceramics, thermal barrier ceramics, non-wetted  
surfaces, and others.